

October, 1990

Agdex 114/33-32

Varietal Description of Brier Six-row Barley

Origin and breeding

Brier, a six-row spring feed barley tested as SB64501 and BT483, was developed at the University of Saskatchewan, Saskatoon, Saskatchewan from the cross Leduc///Galt/York/Dickson/Galt, the final cross being made in 1979. Brier was developed using a modified pedigree method with selection for yield potential, test weight, kernel size, maturity, aleurone color and resistance to scald, stem rust and net blotch. The parental material from which Brier was derived originated from a single plant selected in F₄ from which the seed was grown as a single F₅ row harvested in bulk. Thereafter, seed was handled as a bulk progeny. One hundred and forty-nine breeder lines were selected from the F₉ generation and bulked to form Breeder seed at the F₁₁ generation.

Varietal characteristics

Plant characteristics

Coleoptile color: green
Juvenile growth: erect
Leaves: medium green; medium width and length; sheath of lower leaf green and glabrous with glabrous blade
Flag leaf: medium green; medium width and length; intermediate attitude; waxy sheath; white auricles
Stem: medium thick; bluish green; waxy; with 4 nodes; stem extension is 3-10 cm at maturity; straight neck
Plant height: medium (8 cm shorter than Bonanza, 6 cm taller than Heartland)
Heading: midseason (3 days earlier than Virden, 1 day later than Heartland)
Tolerance to drought: good
Tolerance to straw breaking: good
Tolerance to neck breaking: good
Shattering resistance: good
Disease reaction: resistant to stem rust (*Puccinia graminis*), surface-borne smuts (*Ustilago* spp.), speckled leaf blotch (*Septoria passerinii*); moderately

resistant to scald (*Rhynchosporium secalis*), spot form net blotch (*Drechslera teres*); moderately susceptible to common root rot (*Bipolaris sorokiniana*), net form net blotch (*Drechslera teres*); susceptible to loose smut (*Ustilago nuda*).

Spike characteristics

Type: six-row
Shape: strap; medium length; dense; lateral kernels overlap at tip
Attitude: erect
Lemma: glabrous; smooth, long awns with green tips
Glumes: more than 1/2 the length of the lemma, with long hairs confined to a band; semi-smooth awns, more than equal to the length of the glume, with green tips
Stigma hairs: many
Rachis: first internode straight; segments slightly tapered; medium length hairs on edges

Kernel characteristics

Type: covered
Size: medium length and width
Hull: lemma and palea slightly wrinkled; few barbs on lateral lemma veins; lemma veins green before maturity
Rachilla: midlong with long hairs; few abnormal rachillas
Aleurone color: yellow
Basal markings: transverse crease
Protein content: intermediate
Quality: feed

Performance

Brier has higher yield potential than Virden and Noble, combined with grain quality similar to Heartland and Leduc, and equal or superior to Virden and Noble. It has acceptable maturity intermediate to that of Heartland and Virden, as well as a good combination of leaf disease re-

sistance. It is well suited to non-irrigated barley production throughout western Canada, especially north-western Saskatchewan and central and northern Alberta where spot form net blotch and scald resistance is required. Poor straw strength and root rot susceptibility are disadvantages.

Canadian distributor

SeCan Association

Recommended by

Prairie Registration Recommendation Committee for Grains

Maintenance of breeder seed

University of Saskatchewan, Saskatoon, Saskatchewan

Table 1. Grain yield (100s kg/ha) of Brier and check varieties, Western co-operative six-row barley test, 1986-1988

Variety	Western Canadian Soil Zone*				
	Black(15)**	Brown(14)	Blk & Grey(13)	Peace R(5)	Overall(47)
Bonanza	41.6(100)***	45.0(100)	50.5(100)	40.0(100)	44.9(100)
Argyle	42.9(103)	45.1(100)	51.2(101)	41.6(104)	45.7(102)
Heartland	44.7(107)	50.8(113)	54.7(108)	45.6(114)	49.4(110)
Brier	47.1(113)	52.6(117)	56.6(112)	48.1(120)	51.5(115)

*Black Soil (Zone 1): Brandon, Glenlea, Indian Head, Morden, Portage la Prairie, North Battleford

Brown Soil (Zone 2): Saskatoon, Swift Current, Lethbridge, Watrous, Scott

Black & Grey Soils (Zone 3): Lacombe, Calmar, Vermilion, Olds 1, Olds 2

Peace River: Beaverlodge, Ft. Vermilion

**No. of station years of data

***Yield as % of Bonanza

Table 2. Agronomic characteristics of Brier and check varieties, Western co-operative six-row barley test, 1986-88

Variety	Days to Head	Plant Ht.(cm)	Lodging (1-9)	Days to Mature	1000 k.wt.(g)	T. Wt. (kg/hl)	% Plump
Bonanza	53.5	84.5	5.0	91.0	36.9	60.4	85
Argyle	55.3	85.2	3.7	91.8	35.7	60.3	84
Heartland	54.4	70.7	4.0	91.8	36.6	60.9	77
Brier	54.3	76.9	5.9	92.6	38.7	60.7	77
No. of s.y.	31	38	11	35	33	33	33

Table 3. Disease reaction of Brier and check varieties, Western co-operative six-row barley test, 1986-88

Variety	Stem rust		Net blotch (1-10)*			Net blotch (field ratings)**	
	%	Rxn	102	858	857	Shell(86&88) 1988(Stoon&Shell)	
Bonanza	40	MR/MS***	10.0	9.3	7.0	4.0	3.1
Argyle	33	MR/MS	10.0	9.3	5.0	3.0	2.4
Heartland	27	MR/MS	3.3	6.3	3.3	3.5	2.5
Brier	30	MR/MS	8.7	5.7	2.7	3.7	2.6

	Root rot		Smuts			Scald
	Stoon	Scott	U. nuda	U. hordeii	U. nigra	
Bonanza	41	19	54	12	9	S
Argyle	37	12	40	24	16	S
Heartland	48	21	41	10	3	S
Brier	62	69	52	2	0	MR

*1-10: Higher number = greater severity of symptoms

**Note: All data are means from 3 years except net blotch field ratings.

***MR = Moderately resistant; MS = moderately susceptible.

Table 4. Grain yield (% of Harrington) of Brier and check varieties, Saskatchewan regional trials, 1988

Variety	Area 1(5)*	Area 2(4)	Area 3(8)	Area 4(6)	All (23)
Argyle	72	75	94	73	80
Leduc	92	88	97	83	91
Virden	104	88	102	90	97
Heartland	77	84	89	79	83
Brier	107	101	106	94	102

*No. of station years of data

Note: Harrington = 108% of Bonanza (Sask. Regional Trials long term data).

Trial Sites: Assiniboia, Canora, Frobisher, Jeddburgh, Kelvington, North Battleford, Wynyard, Saskatoon, Shellbrook, Wakaw, Swift Current, Stewart Valley, Melfort, Somme, Meath Park, Scott, Loon Lake, Glaslyn, Indian Head, Regina, Aylesbury, Beverley, Ituna

Table 5. Grain yield (% of Bonanza) of Brier and check varieties, Alberta regional trials, 1988

Variety	Irrig(3)*	Alberta crop region						A11(32)
		I(3)	II(3)	III(7)	IV(4)	V(6)	VI(6)	
Bonanza	100	100	100	100	100	100	100	100
Leduc	107	112	121	108	108	130	114	115
Virden	112	121	132	103	113	129	120	118
Heartland	111	114	126	94	118	118	105	110
Noble	112	126	124	105	119	126	119	118
Brier	112	127	134	11	114	150	131	127

*No. of station years of data

Trial Sites: Lethbridge, Brooks, Bow Island, Strathmore, Pincher Creek, Warner, Oyen, Vulcan, Acme, Drumheller, Trochu, Provost, Vermilion, Kelsey, Stettler, St. Paul, Vegreville, Smoky Lake, Olds, Lacombe, Ellerslie, Westlock, Lac La Biche, Breton, Beaverlodge, Fairview, Dawson Creek, Fort St. John, Valleyview, Falher, Manning, Keg River, Buffalo Head Prairie, High Level, Fort Vermilion, Worsley